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BCStats

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Greener Green Thumbs: Gardening Practices in BC

British Columbia is known for its diverse geography and its accompanying array of climates. The Coast of British Columbia is by far the wettest area in Canada, while some areas located inland are some of the driest places in the country.[1] This climatic variety makes for a unique environment for green spaces, from natural or cultivated parks to home gardens.

With the opportunity to take advantage of its wide-range of growing environments, it is not surprising that many British Columbians choose to turn soil in their own backyard. In fact, in 2009, nearly two thirds (60%) of all BC households that reported spending part of their household budget on garden supplies and services, dropping an average of $252 on such supplies in that year.[2] Most of this is likely coming from residents who live in non-apartment settings, with access to residential green spaces.

It is to be expected that some garden-conscious householders choose to utilize some common tools to boost the quality and aesthetic of their outdoor green spaces. Most gardeners rely on watering their plant-life, particularly during summer months when Mother Nature does not provide enough water to sustain some non-indigenous varieties. It is also not uncommon for householders to turn to fertilizers to improve vegetable yields and the overall health of flowers, lawns and other types of outdoor flora.

Outdoor watering

As the warmer season nears its end, water availability and quality are often in the forefront of minds in many regions of the country, including parts of British Columbia. Regulated water restrictions often become a concern in the warmer, drought-prone months. In 2006, 75 of 459 responding municipalities across the nation, representing 16% of the 11.8 million people served water in those responding municipalities, indicated that they experienced water supply problems sometime in that year.[3]

In the municipal sector, more than half (57% in 2006) of the water demand is a result of residential use. Outdoor gardening and the water needed to maintain outdoor living spaces makes up a considerable share of overall household water use. In fact, domestic water consumption can increase by up to 50% in the summer months, when people water their lawns and gardens.[4] Lawn and garden watering practices can vary significantly from region to

[1] For regional climatic data, including average annual rainfall, see The BC Ministry of Environment: www.env.gov.bc.ca/soils/landscape/1.2climate.html

[2] Statistics Canada, 2009 Survey of Household Spending.

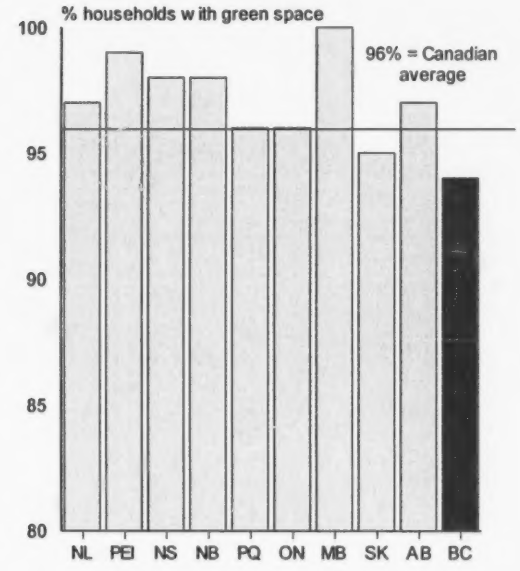
[3] Environment Canada, 2010, Municipal Water Use Report: Municipal Water Use, 2006 Statistics. Available at: www.ec.gc.ca

[4] Environment Canada, 2003.

region, with likely influential factors including climate, dwelling types, laws and even cultural characteristics.

The vast majority (94%) of households that did not live in apartments had a lawn or garden in 2009, a higher ratio than just two years prior (91%). Although that makes for a rather green-sounding province, BC falls below the national average of 96% and, even more notably, below its fellow Western provinces in this measure.

BC households are among the least likely to have a lawn or garden, 2009 (%)

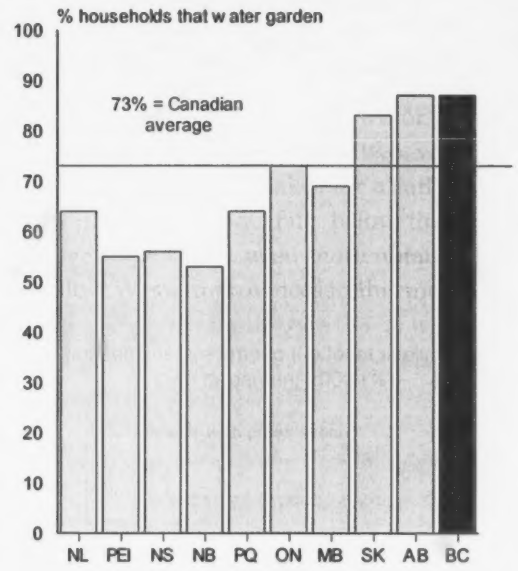


Data Source: Statistics Canada

However, for those households in the province that *do* have outdoor green spaces, residents appear to be quite reluctant to let them go thirsty.

Nearly two out of three households in the province watered their lawns in 2009, while an even higher proportion watered their gardens (87%).

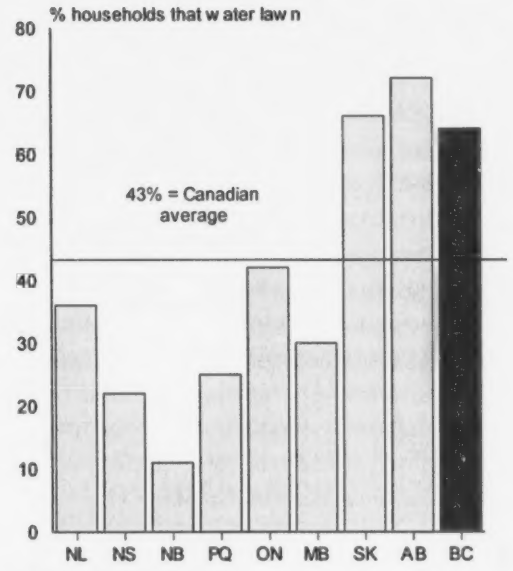
BC households are among the most likely to water their garden, 2009 (%)



Data Source: Statistics Canada

While there is little geographical variability with regard to garden watering, the country's regions vary distinctly in lawn watering habits. Over two-thirds (64%) of BC households with lawns watered them in 2009. By comparison, just over one in ten (11%) households watered their lawns in New Brunswick, while along with BC, provinces in the west saw by far the highest rates of lawn watering (66% in Saskatchewan and 72% in Alberta).

BC households are among the most likely to water their lawns, 2009 (%)



Data Source: Statistics Canada
Note: Data for PEI unavailable

Although British Columbians are avid outdoor water users, they are also leaders in conserving that water through the use of specific devices. Timed sprinklers are the most common of apparatuses used to regulate the use of water in the yard. British Columbian households are among the most likely in the country to reduce lawn and garden water use by using water sprinkler timers. In 2009, over a third (35%) of BC households that watered their lawn with sprinklers made use of a sprinkler timer, the second highest rate in the country (just slightly below Quebec, with 36%).

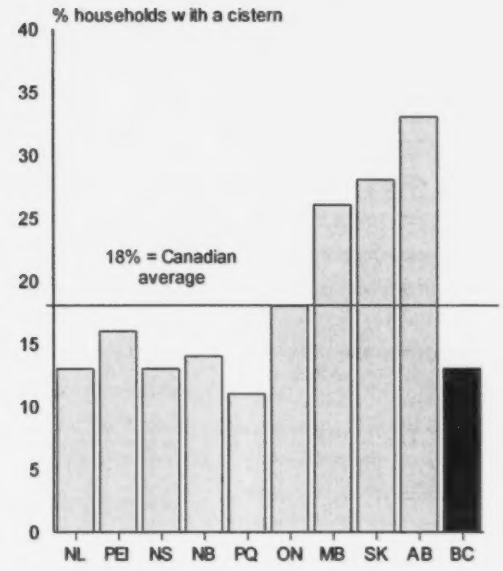
Similarly, BC householders were also the most likely to use timed-sprinklers when watering their garden. In 2009, 48% of BC households who watered their gardens with a sprinkler made use of a timer. This could be attributable to several factors, including the province's promotion of water conservation,[5] municipal regulations,[6] convenience and personal choice. Quebec (43%) was the only other province where the use of sprinkler timers was more common than the average Canadian household (36%).

Although BC excelled in the use of this particular device, some provinces, like Alberta, employ other effective conservation tactics, such as rainwater collection. Cisterns and rain barrels can be used to collect the run-off of rain and snow from roofs. The collected water can then be used to water lawns and gardens and other uses that do not require the water to be potable. In 2009, one third (33%) of non-apartment households in Alberta had a cistern, compared to a mere 13% in BC and a national average of just 18%. They were also commonly used in Saskatchewan (28%) and Manitoba (26%), while households in Quebec, on the other hand, were the least likely to have made use of a cistern or rain barrel, with just 11% of these households reporting one in that year.

[5] See the BC Ministry of Environment's *Water Stewardship Division Water Conservation Strategy*: env.gov.bc.ca/wsd/plan_protect_sustain/water_conservation/wtr_cons_strategy/toc.html

[6] For an example of municipal water restrictions in one of the province's regions, see: *Watering Restriction in the Capital Region District* crd.bc.ca/water/conservation/outdoorwateruse/bylaw.htm

Rain barels are most common among households in the Prairie provinces, 2009 (%)



Data Source: Statistics Canada

Other methods for residential water conservation include leak detection and repair. In fact, an estimated 30% of the total water entering supply-line systems is lost to leaking pipes. Watering at optimal times, such as the early morning, when evaporation is less substantial, is also of importance. As much as 50% of water applied to lawns and gardens is lost to evaporation or run-off due to overwatering.[7]

There are several factors that contribute to the variability of outdoor water use. Sheer geography is an obvious player in the differing water consumption patterns among provinces. For example, in drier climates, such as the Prairie provinces, it is not surprising that householders have a tendency to water more frequently as well as to be more likely to conserve water. Municipal water rates are also likely a strong contributing factor in water usage habits among Canadian householders[8].

Water use appears to have a stronger association with economic incentives than with location characteristics. As utilities prices climb, it can be assumed that householders might naturally be more financially conscious of the resources they consume and, as a result—coupled with an increased environmental awareness—choose to make an effort to conserve water. That being said, according to the 2011 Canadian Water Attitudes Survey, most Canadians are in the dark when it comes to the cost of water. While six in 10 (61%) admit they do not know how much their household currently pays for water, nearly three-quarters (70%) believe that the unknown price is high enough to ensure water is treated as a valuable resource.[9]

Pesticides and Fertilizers

A similar picture emerges when one examines provincial patterns in fertilizer and pesticide use. In 2009, in British Columbia, approximately 60% of households with a lawn or garden applied a pesticide or fertilizer, slightly higher than the national average (56%).

Fertilizers

Fertilizer use in BC was higher than the national average in 2009. Approximately 55% of households with a lawn or garden made use of some form of fertilizer (chemical, organic, or a combination of both) in that year, slightly above the average for Canadian households as a

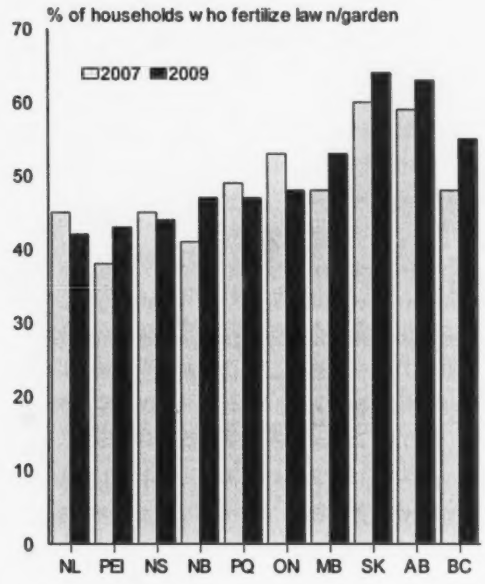
[7] For more information on components of residential water consumption, see Environment Canada: ec.gc.ca/water/en/info/pubs/FS/e_FSA6.htm

[8] For a breakdown of Canadian municipal water and sewage rates by location, see http://ec.gc.ca/eau-water/default.asp?lang=En&n=851B096C-1#BC

[9] Ipsos Reid. 2011 Canadian Water Attitudes Survey.

whole (51%). The westernmost provinces had higher rates of fertilizer use than the rest of the country, with Alberta (63%) and Saskatchewan (64%) being the only provinces to exceed BC's usage rate in 2009.

Households in the West are more likely to use fertilizer



Data Source: Statistics Canada

Despite having somewhat elevated rates of fertilizer use, householders in BC seem to be making changes in the types of fertilizers they choose. In fact, the overall increase in fertilizer application is entirely attributable to the rise in application of organic products. In 2007, for example, 26% of British Columbians with lawns or gardens made use of chemical fertilizers (either alone or in conjunction with organic fertilizers), a rate that remained unchanged in 2009. Meanwhile, the share of those who turned to organic fertilizers (either solely, or coupled with chemical) jumped from 33% in 2007 to 40% in 2009, one of the highest rates in the country. Similarly, the share of BC householders who relied strictly on organic fertilizers was also on the rise over the two-year period (up six full percentage points from 22% to 28%), while those who applied only chemical fertilizers remained unchanged (15% in both 2007 and 2009).

Among the provinces, organic fertilizers are most popular in Quebec. In 2009, 44% of households with a lawn or garden applied organic fertilizers and 40% relied solely on these products and steered clear of chemicals entirely. This compares to a national average of 37% and 29%, respectively. At the other end of the scale, organic fertilizers were least common in Newfoundland and Labrador, where just 26% used organic fertilizer in 2009 and even fewer relied on it exclusively (21%). BC led the Western provinces in terms of households who strictly rely on organic fertilizers (28%).

Pesticides

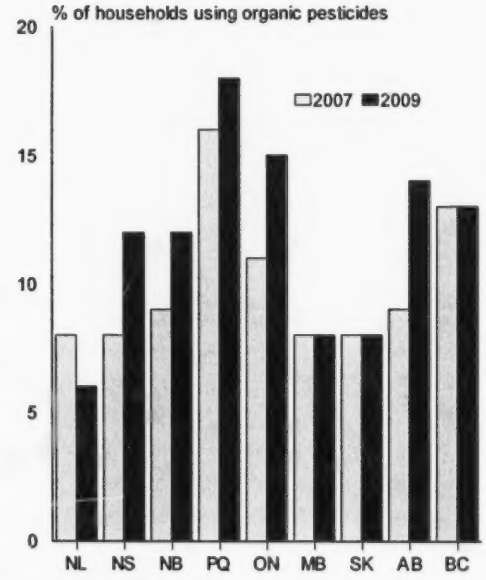
As a whole, pesticide use seems to be diminishing in popularity in British Columbia, as well for the nation in general. In 2009, just over a quarter (27%) of BC households with a lawn or garden chose to apply pesticides, a full six percentage points lower than in 2007 (33%). This pattern was also apparent in most of the other provinces, such that the decline in percentage of Canadian households who opted to use pesticides was virtually identical to that of BC over the same period (also down from 33% to 27%). However, usage was not down in every province, with Quebec and much of Atlantic Canada recording increases.

Among those Canadian households who do use pesticides, it appears that fewer household are turning to chemical sources. Nation-wide, like organic fertilizers, organic pesticides have

shown increases in popularity between 2007 and 2009. The share of British Columbian households utilizing organic pesticides in 2009 (13%) was virtually unchanged from 2007. However, nationally, a slightly different picture emerged, as the percentage of households turning to organic pesticides climbed from 12% to 14% over the same period. Alberta saw the biggest jump (from 9% of households reporting organic pesticide use to 14% between 2007 and 2009).

The 13% of BC households that reported utilizing organic pesticides in their gardens in 2009 was comparable to most provinces, and just slightly less than the national average (14%). Households in Quebec were the most likely to have used an organic pesticide in 2009, (18%), while those in Newfoundland and Labrador were the least likely (6%).

Many provinces have increased their use of organic pesticides



Data Source: Statistics Canada
Note: Data for PEI is unavailable

Substantial improvements have been made in recent years with regard to the purpose of pesticide use in BC. For example, British Columbians are far more likely to apply pesticides to address a specific problem in their yards, rather than making use of it on a regular/maintenance basis. In 2009, of those who applied pesticides (either chemical or organic) to their lawn or garden, over three quarters (76%) used it to address a particular issue, while the remaining 24% had a regular schedule for pesticide application. By comparison, well over a third (38%) of Canadian householders used pesticides for maintenance purposes, while just 62% relied on it only to address specific problems.

BC gardeners also appear to be moving further away from maintenance treatment of green spaces with pesticides, such that in 2007, 34% used it for such purposes, and by 2009, this percentage had dropped substantially. With lower numbers seen in every province, the Canadian average (38% in 2009), also dropped over the same period (down one point from 2007), albeit at a much slower pace than in British Columbia. Decreases in other provinces ranged from one percentage point in Alberta (from 29% in 2007 to 28% in 2009) to five percentage points in New Brunswick (down to 35% in 2009).

What's Next?

Freshwater is vast and abundant in Canada. The nation has the largest supply among industrialized countries, seven percent of the world's renewable water flow (with less than 0.5% of its population).[10] Despite its abundance, many parts of the country still struggle with water availability. Canadians are also large consumers of water, ranking 28th out of 29 industrial-

[10] Statistics Canada, 2003, *Water in Canada. Human Activity and the Environment.* Cat. # 16-201-XIE

ized nations in per capita consumption in 2001.[11] It is clear that Canada is in a prime position to have a significant impact on water supply and quality on local, provincial, national and even global scales. Outdoor residential water use can play a substantive role in the direction in which we are headed.

While the picture painted by outdoor residential water use in BC is varied, it does reflect an overall positive pattern with respect to strengthening water conservation practices. Nationally, there are also some marked differences seen from East to West, reflecting the diverse nature of how Canadians live. Private households in British Columbia and across the country appear to be well situated to face the water-related environmental challenges that are present now and those that will inevitably present themselves in the future.

Of course, water is intrinsically connected to other gardening practices, such as pesticide and fertilizer use. Chemical fertilizers and pesticides used on lawns and gardens can enter local water bodies. After rainfall, snowmelt, or human irrigation, water moves over the ground, picks up pollutants and carries it to bodies of water. Fertilizers are nutrients and as such, when the amount of nutrients in a river or lake becomes too high, it can cause excessive growth of aquatic plants and algae. Chemical pesticides and fertilizers in water can be harmful to plants, animals and people.

This is not to say that turning to organic sources is without its own concerns.[12] An even less threatening method for dealing with lawn and garden pests that appears to be gaining in popularity is for gardeners to employ other pest control tactics to help curtail pesticide usage and cost. The use of beneficial insects, strategic planting as well as pruning for pest management are gaining in popularity.[13] There are also methods of choosing stronger plants that do not rely on fertilizing to maintain optimal health. For example, choosing less lawn space and low-maintenance landscaping, including plants of indigenous variety—which often require little more water than nature provides as well as minimal, if any, fertilizer—are also options.[14]

[11] The University of Victoria, 2001. *Canada versus the OECD: An Environmental Comparison.* www.environmentalindicators.com

[12] For information on organic pesticide sources, see this 2010 study from the University of Guelph: www.uoguelph.ca/news/2010/06/organic_pestici_1.html

[13] See the 2009 edition of the BC Ministry of Environment's Integrated Pest Management Guide for more details on alternative pest management: www.al.gov.bc.ca/cropprot/hg_guide.htm

[14] For more information on climate zones and indigenous planting see Garden Wise BC: www.gardenwiseonline.ca/

and The Native Plant Society of British Columbia: www.npsbc.org/

Table 1
Households with a lawn or garden, 2009

	% of households with lawn and/or garden[1]
Canada	96
Newfoundland & Labrador	97
Prince Edward Island	99
Nova Scotia	98
New Brunswick	98
Quebec	96
Ontario	96
Manitoba	100
Saskatchewan	95
Alberta	97
British Columbia	**94**

Notes:
1. As a percentage of all households that did not live in an apartment
Data Source: Statistics Canada, Household and the Environment Survey, 2009

Table 2
Outdoor water use and conservation, by province, 2009

	Households with a cistern[1]	Households with a lawn[2]	Watered lawn[3]	Used a lawn sprinkler[4]	Used a timer on lawn sprinkler[5]
Canada	18	70	43	72	27
Newfoundland & Labrador	13	83	36	50	n/a
Prince Edward Island	16	80	n/a	n/a	n/a
Nova Scotia	13	84	22	61	n/a
New Brunswick	14	84	11	63	n/a
Quebec	11	61	25	57	36
Ontario	18	72	42	64	24
Manitoba	26	71	30	76	n/a
Saskatchewan	28	76	66	88	15
Alberta	33	75	72	84	23
British Columbia	**13**	**66**	**64**	**83**	**35**

Notes:
1. As a percentage of households that were not in apartments.
2. As a percentage of all households.
3. As a percentage of households that had a lawn
4. As a percentage of households that watered their lawn
5. As a percentage of households that used a sprinkler to water their lawn
Data Source: Statistics Canada, Households and the Environment Survey, 2009

Table 3
Outdoor water use and conservation, by province, 2009

	Had a garden[1]	Watered garden[2]	Used a garden sprinkler[3]	Used a timed garden sprinkler[4]
Canada	61	73	23	36
Newfoundland & Labrador	64	64	n/a	n/a
Prince Edward Island	69	55	n/a	n/a
Nova Scotia	67	56	18	n/a
New Brunswick	71	53	n/a	n/a
Quebec	52	64	15	43
Ontario	65	73	18	36
Manitoba	61	69	21	n/a
Saskatchewan	59	83	43	n/a
Alberta	61	87	31	30
British Columbia	**61**	**87**	**39**	**48**

Notes:
1. As a percentage of all households.
2. As a percentage of households that had a garden
3. As a percentage of households that watered their garden
4. As a percentage of households that used a sprinkler to water their garden
Data Source: Statistics Canada, Households and the Environment Survey, 2009

Table 4
Households with lawn or garden, by fertilizer choice, 2009 (%)

	Applied Fertilizer			
	Applied chemical fertilizer[1]	Applied organic fertilizer[1]	Applied both fertilizers[1]	Applied only organic fertilizer[1]
Canada	22	37	7	29
Newfoundland and Labrador	20	26	n/a	21
Prince Edward Island	18	31	n/a	25
Nova Scotia	19	31	6	26
New Brunswick	20	32	n/a	28
Quebec	7	44	4	40
Ontario	18	36	6	30
Manitoba	36	29	12	17
Saskatchewan	52	27	15	12
Alberta	45	31	13	17
British Columbia	**26**	**40**	**11**	**28**

Notes:
1. As a percentage of all households that had a lawn or garden and applied either chemical or organic fertilizers
n/a: data not available and/or too small and unreliable to publish
Note: totals do not add to 100 due to variable responses
Data Source: Statistics Canada, Households and the Environment Survey, 2009

Table 5
Households with lawn or garden, by pesticide choice, 2009 (%)

	Applied Pesticide				
	Applied chemical pesticide[1]	Applied organic persiticide[1]	Applied only organic pesticide[1]	Applied pesticide(s) on a regular schedule[1]	Applied pesticide(s) to address problem[1]
Canada	15	14	12	38	62
Newfoundland and Labrad	15	6	n/a	44	57
Prince Edward Island	17	n/a	n/a	n/a	70
Nova Scotia	14	12	9	30	74
New Brunswick	16	12	10	35	66
Quebec	4	18	17	55	45
Ontario	10	15	13	44	56
Manitoba	43	8	n/a	31	68
Saskatchewan	41	8	n/a	30	71
Alberta	33	14	9	28	73
British Columbia	**18**	**13**	**9**	**24**	**76**

Notes:
1. As a percentage of all households that had a lawn or garden and applied either chemical or organic pesticides
n/a: data not available and/or too small and unreliable to publish
Note: totals do not add to 100 due to variable responses
Data Source: Statistics Canada, Households and the Environment Survey, 2009

Table 6
Change in organic use by province, 2007 and 2009 (%)

	Used organic fertilizer[1]		Used organic pesticide[1]	
	2007	2009	2007	2009
Canada	34	37	12	14
Newfoundland & Labrador	27	26	8	6
Prince Edward Island	30	31	8	n/a
Nova Scotia	35	31	8	12
New Brunswick	28	32	9	12
Quebec	44	44	16	18
Ontario	32	36	11	15
Manitoba	24	29	8	8
Saskatchewan	25	27	8	8
Alberta	27	31	9	14
British Columbia	**33**	**40**	**13**	**13**

Notes:
1. As a percentage of all households that had a lawn or garden and applied either chemical or organic pesticides
n/a: data not available and/or too small and unreliable to publish
Note: totals may not add to 100 due to variable responses
Data Source: Statistics Canada, Households and the Environment Survey, 2007 and 2009